

BANGS. (L. BOLTON)

Cases of Suprapubic
Cystotomy.

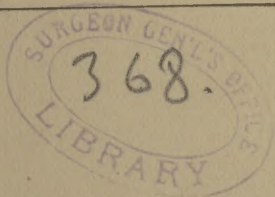
BY

L. BOLTON BANGS, M. D.,

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NEW YORK POST-GRADUATE MEDICAL SCHOOL.

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CASES OF SUPRAPUBIC CYSTOTOMY.*

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MEDICAL SCHOOL.

My object in presenting the following cases for your consideration is simply to place them upon record, with the hope that, perhaps, something in their management may add to the experience of others.

My own experience has been limited to six cases—two for the removal of tumors from the wall of the bladder, three for vesicular calculi, and one for the removal of a calculus, together with the excision of three small tumors (probably prostatic) from the internal urethral orifice.

CASE I. *Calculi*.—Patient aged seventy-three, native of the United States, mechanic. This old man gave no renal, pulmonary or specific history. He has had some pain over the heart, "spots before his eyes," and attacks of dizziness. His arteries are notably atheromatous. For some years he has had frequent urination, but no pain till about a year before this history was taken, when he experienced a burning sensation in his urethra and pain at the end of the penis. At that time he was searched, but no stone was found. Since then he has been gradually getting worse. He has had attacks of hæmaturia, especially after

* Read before the American Association of Genito-urinary Surgeons at its third annual meeting.

walking or any muscular effort, and he is compelled to urinate about every two hours. On searching him with a lithotrite, one stone was grasped and another could be felt in the bladder. Suprapubic cystotomy being decided upon, the operation was done with the aid of Petersen's rectal bag.

The bladder was reached easily, and, on being opened, considerable hypertrophy of the prostate was found. Behind the prostate was a deep pouch in which were four stones, one large one and three smaller. The latter accurately fitted each other by facets, forming a tessellated stony floor to the pouch, upon which the large stone rested.

Inasmuch as the patient had considerable cystitis, the bladder was not sutured. Two rubber drainage-tubes were introduced to the base of the bladder, the wound was packed with iodoform gauze, and over this the usual antiseptic and absorbent dressings, consisting of layers of iodoform and bichloride-of-mercury gauze and absorbent cotton, were applied. The wound was irrigated frequently with a solution of mercuric bichloride (1 to 5,000), but the bladder was irrigated with a boro-salicylic solution. One of the tubes was removed on the fourth, and the remaining tube on the seventh day. From that time the catheter was passed twice daily, and the bladder irrigated with the customary boro-salicylic solution. The wound granulated rapidly. On the eleventh day the patient was out of bed, passing the greater portion of his urine by the natural channel, but still continued to wear over the sinus leading to the bladder a pad of absorbent cotton, which, when properly attended to—*i. e.*, when changed frequently enough—kept his clothing dry.

Two weeks after, it is noted that he still had a sinus, through which a little urine escaped, but most of it passed *per urethram*. Ten days later the wound was entirely closed, and, in spite of the enlargement of the prostate, he was able to evacuate his bladder spontaneously. During the whole course of the healing process this patient had no pain. On the day of the operation he was comfortable, and on the second day after was lying on his side reading the newspaper. The drainage may be considered to have been efficient so far as the bladder was concerned, but his bed and clothing were always somewhat wet until he

was permitted out of bed, and even then his clothing would be wet unless the absorbent cotton was frequently changed.

CASE II. *Papilloma of the Bladder*.—This patient was kindly referred to me for operation in St. Luke's Hospital by Dr. Otis, and has already been reported by him* in illustration of the advantage of the cystoscope. I mention it briefly only to give some details of the operation and of the after-treatment. Petersen's method was attempted, but, for some reason or other which was not discovered till after the operation, the rectal bag did not lift the bladder. The patient's abdomen being very fat, and its muscles rigid from imperfect etherization (he did not take ether well), a sound was passed into the bladder through the urethra, and the incision guided by this. The recti muscles contracted so firmly that at first I experienced difficulty in examining the interior of the bladder, but by deepening the ether narcosis and using vaginal specula as retractors, the tumor was fully exposed and easily removed by scissors, the curette, and Paquelin's cautery. One large drainage-tube was inserted to the bottom of the bladder, and the incision in the latter was brought together by a continuous catgut suture, as likewire were the different layers of the abdominal wall, leaving only an opening for the tube. The abdomen was dusted with iodoform, and over all a thick antiseptic dressing of bichloride gauze and absorbent cotton was placed. The free end of the drainage-tube was placed in the dressings. After the operation the patient had violent vesical tenesmus for three days, controlled only by hypodermatic injections of morphine.

For the first week, besides the urine, there was a discharge of pus and mucus stained with blood, and the bladder was washed out through the abdominal wound three times daily with a boro salicylic solution. This discharge gradually disappeared, and on the eighth day the tube was removed. The wound had united by first intention, but in the first week about two thirds of it broke down and slowly healed by granulation. Even by frequent changing of the dressing it was impossible to keep the patient dry. He could not endure the use of the catheter, and was excessively hyperæsthetic and "nervous," but he steadily

* See "Medical Record," May 5, 1888.

regained the power of evacuating his bladder by the natural channel, and by the twenty-fifth day did so entirely. It was not till the thirty-fifth day that the wound in the abdominal parietes was entirely healed.

CASE III. *Papilloma of the Bladder*.—This patient was also referred to my service in St. Luke's Hospital by Dr. Otis. Two years before coming under observation he noticed, while passing water, that a large amount of blood came with it. He had no further trouble until several months later, when he had a second hæmorrhage. For some months past he has had at different times hæmorrhages while urinating, none of which were very large, but he had them repeated to an extent sufficient to cause anæmia and great deterioration of his health. By means of the cystoscope, Dr. Otis diagnosticated a tumor, probably papillomatous, on the right side of the bladder. His hæmorrhages had now become so frequent and so abundant that his urine always contained a large amount of blood, and his condition was such that operative interference was imperative. At the time of the operation I repeated the examination with the cystoscope and located the tumor, but it was covered with clots of blood and I could not definitely describe it. The rectal bag was inserted and distended with twelve ounces of water. Nine ounces of a warm and weak boro-salicylic solution were injected into the bladder before the latter was made prominent above the pubes. The abdomen was very thick and contained a large amount of fat. After dividing the transversalis fascia and the layer of fascia covering the supravesicular fat, the latter was easily and rapidly stripped up, carrying with it the peritonæum. Silk sutures, one on either side of the median line, were then passed through the bladder, which was thus held up into the wound and incised with a pair of scissors. As the fluid escaped from the bladder, a suspicious-looking fat (which proved to be omentum) appeared in the upper part of the wound. A careful examination being made, it was found that one of the sutures had caught the peritonæum where it was lower on one side of the surface of the bladder and was thus drawn into the line of the incision. The wound in the peritonæum was sutured immediately by catgut and the bladder opened freely toward the

pubes. The bladder was held open by a vaginal speculum, and the tumor seen on the right side of the bladder was removed by scissors. A good-sized artery supplied the center of the tumor and free hæmorrhage occurred, but it was controlled with a silk ligature, the ends of which were brought out of the wound. There was also considerable parenchymatous hæmorrhage from the base of the tumor, which persisted in spite of the use of the actual cautery. Against this a strip of iodoform gauze was carefully packed, and the two drainage-tubes, placed in the bladder, made sufficient pressure against the gauze to stop all bleeding. A small drainage-tube was inserted in front of the bladder in the lower angle of the wound; the upper part of the abdominal wound was brought together by continuous catgut sutures and an antiseptic absorbent dressing applied. The patient had very little pain immediately after the operation, but for nearly ten days thereafter had paroxysms of pain, especially at night; but these gradually decreased in severity and finally ceased. The bladder was irrigated twice daily by a boro-salicylic solution. On the fourth day the iodoform gauze in the bladder and one tube were removed. The wound granulated well. From the second day after the operation the catheter was passed daily and the bladder irrigated also by means of this, but on the seventh day after the operation, the patient had some urethritis, and the use of the catheter was omitted. On the thirteenth day the patient was out of bed, passing some urine through the urethra. On the eighteenth day the wound was closed, so that when the patient was in a standing position and pressure made over the pubes, he could urinate normally. On the twenty-fourth day he went to his business, but there was a fine sinus leading downward and backward, through which a probe could be passed, and from which a few drops of urine escaped. I passed through the urethra as large a sound as the meatus would admit, and four days later he reported to me that some urine had escaped from the sinus the night of the operation (*i. e.*, the introduction of the sound), but none since. This patient had no temperature above 99° F. during the whole process of healing.

CASE IV. *Calculus*.—This patient was a well-preserved man

of forty-nine. For several years he had had symptoms of vesical irritability. Of late he had had hæmaturia, painful and frequent urination, and continued pain in the bladder with paroxysmal exacerbations, the pain especially increased by locomotion. The first searching revealed a stone of comparatively large size, but subsequent searchings failed to detect it. Being certain as to the first exploration, and finding that the bladder was very irritable, I decided upon suprapubic cystotomy, which was performed a few days later. This patient's abdomen was very fat and the muscular wall of the bladder was not easily exposed, but by two silk sutures inserted, one on either side of the median line, it was lifted and opened. A large, flat stone was found resting behind the pubes, which may account for its eluding the searcher, the latter being resisted and compressed by the irritable bladder. One small, straight rubber drainage-tube (about seven centimetres in diameter) was placed in the bladder, and the wound in the latter sutured with catgut, excepting the small part occupied by the tube. A fine drainage-tube was placed in front of the bladder in the lower angle of the wound, and the abdominal tissues were then sutured with catgut. The whole was covered by an antiseptic dressing, consisting first of layers of iodoform gauze, then of several thicknesses of bichloride gauze, and over all a thick layer of absorbent cotton. The end of the drainage-tube was carried through a layer of absorbent cotton packed in the mouth of a glass urinal (known in hospital parlance as a "duck"), which was placed on the bed beside the patient.

At first this promised well, and served to accumulate a large proportion of urine, but the patient soon began to suffer from vesical tenesmus. The paroxysmal contractions of the bladder forced a certain amount of urine by the side of the drainage-tube, sufficient to saturate the immediate dressings, and thence by imbibition to the bed-clothing.

For forty-eight hours it was necessary to relieve his pain by hypodermatic injections of morphine. After that he had no pain. On the evening of the operation his temperature was 101° F. For five days it was about 100°, and after that normal. On the tenth day he passed some urine normally, and from that time

on the quantity passed by the urethra gradually increased. On the sixteenth day he was out of bed, wearing a pad of absorbent cotton, which took up a small amount of urine escaping from time to time from a suprapubic sinus. On the twenty-first day he returned to his business, but he still had a narrow sinus, which I probed and measured and found to be three inches long, curving downward and backward behind the pubes. From this a drachm or so of urine escaped, especially at night. As there was no prostatic obstruction in this case, I thought, as in the preceding case, that perhaps the urethra had lost tone from disuse, and therefore passed through the urethra, well into the bladder, a sound as large as the meatus would admit.

On the second day after this simple manœuvre there was no discharge whatever from the sinus, and on the fourth day it had entirely healed to the level of the skin.

CASE V. *Calculus; Three Small Tumors.*—This patient was a professional man of fifty nine—a man of temperate and regular habits, a total abstainer as regards alcohol and tobacco, and without any venereal history of any kind. About thirty-four years ago he had a retention of urine for several hours, without any known cause excepting “catching cold.” This was relieved by the catheter, and he had no further trouble. For several years he had frequent urination, but never any pain or anything that called particular attention to himself until about two years ago. At that time he began to have cause to urinate every two hours, the amount of urine each time being scanty. The stream would stop suddenly and then come on again. He was examined by an electrician, and was told that he had one or two strictures. These were said to have been “cured” by electricity; but he was under treatment for eighteen months, and during the course of this treatment it was discovered that he had “*enlarged prostate*,” and he was recommended to use the catheter. He had some relief from his sufferings both as to frequency and pain in the act of urination; but he soon (in the course of three months) began to have intense pain, and the calls to urinate increased again to once in two hours and oftener. Then the electrician made four applications of the galvanocautery to the so-called “enlarged prostate.” After that he

was confined to his room ; his urine became "foul" and bloody, and he was said to have had "fever" every night. For eighty-six days before I examined him he had been utterly unable to pass any urine except by the catheter. His sufferings were extreme—continuous pain in the bladder and penis, with paroxysmal exacerbations of extreme intensity. When I first examined him there was by the rectum no appreciative enlargement of the prostate. The ordinary Thompson searcher passed readily and easily into the bladder, without deflection or depression of its handle, and its beak immediately produced the characteristic click of a calculus. His urine was loaded with pus and mucus, and was horribly offensive in spite of an occasional washing of the bladder, which he resorted to unwillingly, as it seemed to aggravate his sufferings. This was his condition in spite of the daily use of electricity and of the homœopathic remedies which he was taking with religious fidelity every two hours, night and day. A few days after this examination the operation of suprapubic cystotomy was done in the usual manner. The bladder was easily reached, incised, and a very large spherical calculus, weighing 390 grains, easily removed. The bladder seemed to have contracted around the stone in such a way as to form a shallow pocket (not like a diverticulum or sac with a narrow mouth), in which the stone moved or rolled, but which could be distinctly made out by the exploring finger. The small portion of the bladder between the anterior wall of this pocket and the mouth of the urethra seemed to be normal. By means of the vaginal specula, aided from time to time by the electric light, the interior of the bladder was easily inspected. The mucous membrane was greatly hypertrophied, bluish-red in color, bleeding easily, and near the base posteriorly were seen a few drops of clear pus oozing into the bladder. At first I thought it to be escaping from one of the ureters, but close examination revealed a little abscess in the bladder wall, probably near the site of the calculus. During the subsequent manipulations this was thoroughly evacuated and irrigated. Around the internal orifice of the urethra were three small sessile tumors, soft in consistence, and apparently of hypertrophied mucous membrane. They were of unequal size, but were about the di-

mensions of half a cherry. Their globular surfaces projected inward and toward each other in such a way that, when they folded together, they completely occluded the urethra. They were easily separated by the finger from within, or by an instrument (sound) passed through the urethra from without; but they immediately approximated themselves, and evidently acted during a contraction of the bladder as an obstructing valve to the exit of fluids. An attempt was made to excise these with a wire *écraseur*, but failed because they were too soft to be drawn into the loop of the wire. I then seized each one in turn by forceps, and removed it with scissors and a sharp spoon. They were so friable that the portion in the grasp of the forceps would tear off immediately, and it was by a process of nicking and scratching that they were finally removed, so that, both to the sense of sight and touch, there was no obstruction to the urethra. The bleeding surfaces were treated by Paquelin's cautery; but an artery of considerable size, supplying one of the tumors, was, after some difficulty, secured by a catgut ligature. The bladder was thoroughly irrigated; a drainage-tube, of about five centimetres in diameter, placed in the bladder, was held *in situ* by a silk ligature carried through the abdominal wall and through the tube. I deemed it unadvisable to suture the bladder or the layers of abdominal tissue, but packed the wound with iodoform gauze, and over this placed the usual antiseptic and absorbent dressings.

The free end of the drainage-tube was placed in a larger one, three or four feet long, the other end of this second tube being weighted and led beneath the level of a solution of (1 to 40) carbolic acid in a glass jar. The latter was placed on the floor near the bed, and a perfect siphon process established. The patient for the first night had repeated attacks of vesical tenesmus relieved by the use of morphine. After that he had no pain. For three days the drainage-tube worked perfectly, and the patient's dressings were kept dry. After that it ceased to be efficient, and, although it siphoned over the greater amount of urine, some escaped by the side of the tube upon the dressings. The tube was removed on the fifth day, and after this, in order to keep the patient's dressings dry, it was necessary to remove

the pads of absorbent cotton every few hours. The patient's nocturnal temperature had been 102° F. before the operation, but after this it daily decreased, and on the fourth day was normal. In every respect his improvement was rapid. The offensive odor disappeared immediately, but the bladder was irrigated every time that the dressings were changed till the ninth day, when the mucus and pus had decreased so greatly that after that the bladder was irrigated but once a day. On the eleventh day the patient passed some urine by the urethra, and on the thirteenth day he was out of bed for a few hours only. The wound granulated freely, and on the ninth day it is recorded that only the narrow point of the irrigating tube could be insinuated into the bladder. This patient is still under observation. He has not yet regained normal urination, but passes a few drachms spontaneously.

CASE VI. *Calculus*.—The patient, aged sixty-nine, native of the United States, was a temperate man of good general history. For a number of years he has had paroxysms of dyspnœa lasting a few moments and occurring especially at night. No gastric or other symptoms. For a month or six weeks he has had some swelling of the right foot and leg, with an ulcer on the leg and pain in the heel. For some months he has had frequent micturition, more marked at night, some hesitation and straining at commencement of the act, and occasional stoppage of the flow of urine. The stream is small, the last few drops passing always without control, and the quantity passed at a time is small. Sometimes his urination is precipitate, and at times he has pain at the end of the penis on urinating. Driving or jolting increases his micturition. He has had one attack of hæmaturia. About two months ago he underwent an operation for hæmorrhoids, which were supposed to be the source of his troubles. He makes from twenty-seven to thirty-seven ounces of urine in the twenty-four hours, which contains a large amount of leucocytes and about one per cent. of albumin. There is felt *per rectum* considerable hypertrophy of the prostate. With great difficulty and after some persistency the searcher is introduced into the bladder and a calculus detected. The operation was done in the usual way.

Seven ounces of warm boro-salicylic solution were injected into the bladder, and into the rectal bag nine ounces. Although the patient was very obese, the bladder was brought prominently in view, and was reached without difficulty. The layer of fascia, containing a mass of fat, was easily rolled up, carrying with it the peritonæum. The bladder was opened, and two stones of very unusual shape were removed. One consisted of a spherical central portion, with seven secondary crystalline deposits radiating from it like the spokes of a wheel. The radii were about half an inch in length, were bifid at their extremity, and the whole stone had the appearance of an ordinary iron "jack-stone" used by the children. The second stone was cone-shaped, the apex of the cone being very sharp. A single drainage-tube was placed in the bladder, secured by a silk ligature to the abdominal wall and to the lower end of the wound. The wound in the bladder was carefully brought together by continuous catgut suture down to the drainage-tube, and the wound in the abdomen treated in the same way.

The usual antiseptic dressings were applied, and the siphon drainage as described in the preceding case was established. The siphonage was perfect for three days. Then urine began to escape by the side of the tube and also *per urethram*. From twelve to fifteen ounces were passed each day in the natural way. The patient had no pain from the time of the operation. His temperature did not rise above 100, and then only for a day. After that it was normal. The tube was removed on the third day and the proportion of urine which escaped through the abdominal wound was received by the usual absorbent cotton, and by frequent changing the patient was kept comfortable and comparatively dry. On the sixteenth day he was out of bed, urinating entirely by the urethra, and with the wound in the bladder and abdomen closed.

Permit me a few remarks upon the technique of these operations and upon their after-management. In making the incisions through the abdomen, I have observed that the line between the pyramidales muscles may be readily found by first ascertaining the notch made by the junction

of the two pubic bones. The pigmented line of the rhapshe curves laterally in some individuals at the lower part of the abdomen, and is not always a good guide to the separation between these two muscles, but by deep pressure above the mons Veneris this notch can always be felt, and the lower end of the incision should be directed to this point without regard to the course of the rhapshe. The consecutive incisions following the line of the first one easily and rapidly proceed to the transversalis fascia, which, being divided (sometimes also another thin film of fascia), the supravescicular fat, carrying with it the veins and the peritonæum, may generally be quickly and easily stripped up with the finger. These may be small matters, but under some circumstances rapidity of execution in the operation may be a necessity, as in the case of the patient aged sixty-nine, whose cardiac and nephritic conditions were such as to require most careful watching.

In one case I was obliged to find the bladder by means of a sound passed through the urethra. Why the rectal bag had failed was not ascertained till after the operation, when it was found fully distended (with $\frac{3}{4}$ xvj of water) in the douche pan upon which the patient was lying. During the early administration of the anæsthetic and before my first incision was made he had evidently forced the bag out of his rectum. I had taken it for granted that the rectal bag had burst, and, not wishing to delay the operation, went on with the aid which I have described. It was gratifying to learn later on that such a distension of the man's anus had had no ill effect. Lange reports a laceration of the rectal wall by the rectal tampon.

From Eigenbrodt's report from Trendelenburg's clinic, in the "*Deutsche Zeitschrift für Chirurgie*," Bd. xxviii, 1888, I learn that he thinks it unnecessary to resort to the rectal bag; nor does he dilate the bladder forcibly, but just enough

to produce a dull percussion sound above the pubes. The preparatory treatment advocated by Petersen and Perier in cases of contracted bladder or cystitis when present—namely, repeated injections—I have not considered necessary, but have operated at once in order to remove as soon as possible the cause of the bladder symptoms.

In none of my cases have I found it necessary to resort either to the transverse incisions or to the elevation of the pelvis, both of which are advocated by Trendelenburg. The interior of the bladder was always easily exposed by the use of uterine or rectal specula, which not only reflected a strong light upon the field of operation, but did not interfere with the manipulations. A wider experience may lead me to adopt one or both of these procedures.

I have made no attempt to secure primary union of the *whole* wound in the bladder, but in cases where the latter seemed to be in good condition have sutured it, excepting the small portion for the drainage tube. In others, the wounds have been left open, together with the overlying tissues, in order that the whole might be healed by the process of granulation. Dr. Lange has lately recommended securing primary union of the walls of the bladder by means of a retention catheter, and reports some excellent results. I doubt if any of my patients could have endured the presence of a catheter for a number of consecutive hours, nor do I think it advisable, in order to secure an insensitive urethra, to narcotize or semi-narcotize the patient by the administration of opium. It seems to me that the patient's well-being and his healing forces should be preserved by avoiding narcotics, and using them only for the relief of violent paroxysmal pains from which some of these patients suffer for a short time after the operation. For the same reason I have not restricted the patients to any particular posture after the operation. I leave them to choose their own posture, and,

as you will remember, the old man, in the first case reported, lay upon his side reading the newspaper on the second day after the operation. The abdominal decubitus which Trendelenburg recommended, I am glad to see, he no longer considers essential. I have tried different methods of drainage, and do not find any special advantage in the Trendelenburg T-tube. One or two straight fenestrated rubber tubes, kept thoroughly cleaned by an antiseptic solution, serve the purpose admirably. The siphoning system, as I have described it in reporting the cases, seems to be the most advantageous, but all methods seem to fail after three or four days. By this time granulations have generally covered the wounds, and then I resort to pads of absorbent cotton which, if changed with sufficient frequency, will keep the patient's clothing and bed dry. I doubt if any system of drainage will prevent the sudden and violent expulsion by the side of the tube of a certain amount of urine, which soon by capillary attraction finds its way to the surrounding clothing. Later on, say after the first ten days, I have found that the patients are able to attend to the changing of the absorbent cotton themselves. A roll of cotton within easy reach and a basin placed by the side of the bed for the reception of the soiled cotton, enable them to keep themselves comfortable with comparative trifling expense and trouble, for they soon learn when to change the cotton.

It seems to me to be a good plan to get these patients out of bed long before the healing process is completed, for, in my judgment, the function of the urethra is more quickly restored and the openings in the bladder and abdomen are more quickly healed perhaps by the pressure which the abdominal contents exert when in the upright position. In each of two cases there was a fistula which may have been slowly healing, but which seemed, in spite of the otherwise good condition of the patients, to be inclined to persist.

Reasoning that this might be due to the loss of tone of the urethra, I did the very simple thing of passing a sound, and, as you no doubt have noticed from the history, the largest and deepest fistula was healed in two days and the smaller one within a day after the use of the instrument. This seems a very simple method, but it may be scientific. At all events, one of these patients informed me that after the passage of the sound he made a stream larger and with greater force than he had done before. While I do not attach much importance to such statements from patients, unless I have had the means of verifying them, I think this was true, and it leads me to suggest to my colleagues that even slight obstructions in the urethra may prevent the rapid healing of these troublesome fistulæ. Hence in such cases the meatus and urethra should be carefully examined.

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